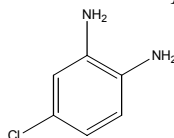


4-CHLORO-*o*-PHENYLENEDIAMINE

CAS No. 95-83-0

First Listed in the *Fourth Annual Report on Carcinogens*



CARCINOGENICITY

4-Chloro-*o*-phenylenediamine is *reasonably anticipated to be a human carcinogen* based on sufficient evidence of carcinogenicity in experimental animals (NCI 63, 1978; IARC V.27, 1982; IARC S.4, 1982). When administered in the diet, technical-grade 4-chloro-*o*-phenylenediamine induced carcinomas of the urinary bladder in rats of both sexes and hepatocellular carcinomas of the liver in mice of both sexes.

There are no data available to evaluate the carcinogenicity of 4-chloro-*o*-phenylenediamine in humans (IARC V.27, 1982).

PROPERTIES

4-Chloro-*o*-phenylenediamine occurs as a crystalline powder. It is slightly soluble in water, soluble in benzene and petroleum ether, and very soluble in ethanol and diethyl ether. It is available in the United States containing maxima of 2% ash and 2% moisture.

USE

4-Chloro-*o*-phenylenediamine has been patented as a hair dye component. No evidence was available to indicate that it is presently used commercially in the United States as a dye or dye intermediate. 4-Chloro-*o*-phenylenediamine is believed to be used to produce 5-chlorobenzotriazole (an isomer of which is a photographic chemical) (IARC V.27, 1982).

PRODUCTION

The 1998 *Chemical Buyers Directory* lists two suppliers of 4-chloro-*o*-phenylenediamine and Chemcyclopedia 98 names one U.S. supplier (Tilton, 1997; Rodnan, 1997). Although no current producer of the chemical has been identified, the USITC has listed one domestic company producing an undisclosed amount of 4-chloro-*o*-phenylenediamine since 1982 up until 1990 (USITC, 1983-1991). The 1979 TSCA Inventory identified one U.S. firm producing 6,000 lb in 1977 (TSCA, 1979). 4-Chloro-*o*-phenylenediamine has been produced commercially in the United States since 1941 (IARC V.27, 1982). No data on imports or exports were available.

EXPOSURE

The primary routes of potential human exposure to 4-chloro-*o*-phenylenediamine are ingestion, inhalation, and dermal contact during its production. Exposure could occur if accidental releases of the compound into the work environment took place. Potential exposure is limited to the single production site. Consumer exposure could potentially occur from residues in hair dyes or in products made from 5-chlorobenzotriazole. No estimate has been made as to the number of potential exposures to this compound.

REGULATIONS

EPA regulates 4-chloro-*o*-phenylenediamine under the Toxic Substances Control Act (TSCA), subjecting it to reporting rules. EPA has proposed regulating 4-chloro-*o*-phenylenediamine as a hazardous constituent of waste under the Resource Conservation and Recovery Act (RCRA). OSHA regulates the compound under the Hazard Communication Standard and as a chemical hazard in laboratories. Regulations are summarized in Volume II, Table B-24.